WHAT IS CLAIMED IS:

1. A method of treating a biological material comprising the steps of:

(a) contacting the biological material with a preparation comprising a surfactant and a cross linking agent in the absence of a denaturant; and

(b) contacting the biological material with a preparation comprising a surfactant, a cross linking agent and a denaturant.

2. The method according to claim 1 wherein said method results in mitigating calcification in said biological material when implanted into a host organism relative to the same method that does not include step (a).

3. The method according to claim 2 wherein said mitigating calcification results in elimination of calcification in said biological material.

4. The method according to claim 1 wherein said method results in reducing the phospholipid content in said biological material when implanted into a host organism relative to the same method that does not include step (a).

5. The method according to claim 1 wherein said step (a) is performed prior to said step (b).

6. The method according to claim 1 wherein the method further comprises, after completion of steps (a) and (b), contacting the biological material with a terminal liquid sterilization solution.

7. The method according to claim 6 wherein the method further comprises, prior to step (a), contacting the biological material with a solution comprising a cross linking agent in the absence of a denaturant and in the absence of a surfactant.

8. The method according to claim 1 wherein the biological material is a bioprosthetic tissue.

9. The method according to claim 8 wherein the bioprosthetic tissue is incorporated into a bioprosthesis.

10. The method according to claim 6 wherein the terminal sterilization solution comprises a cross linking agent and is heated to a temperature in the range from 35 to 55 degrees Celsius.

11. The method according to claim 1 wherein the cross linking agent of the preparation used in step (a) and (b) is independently selected form the group consisting of an aldehyde, a diisocyanate, a carbodiimide, a polyepoxy compound, a bifunctional maleimide compound, a bifunctional N-hydroxysuccinimide ester compound, a bifunctional imidoester compound, a bifunctional pyridylthio compound, a bifunctional vinylsulfone compound, a photoactivatable cross-linkers or combination thereof.

12. The method according to claim 11 wherein the cross linking agent of the preparation used in step (a) is glutaraldehyde.

13. The method according to claim 1 wherein the cross linking agent of the preparation used in step (b) is a member selected form the group consisting of formaldehyde, glutaraldehyde or a combination thereof.

14. The method according to claim 1 wherein the denaturant of the preparation used in step (b) is a protic solvent.

15. The method according to claim 14 wherein the denaturant of the preparation used in step (b) is an alcohol.

16. The method according to claim 15 wherein the denaturant of the preparation used in step (b) is ethanol.

17. The method according to claim 1 wherein the surfactant of the preparation used in step (a) is selected from the group consisting of a nonionic surfactant.

18. The method according to claim 17 wherein the surfactant of the preparation used in step (a) is Tween 80.

19. The method according to claim 18 wherein the concentration of Tween 80 in is between 0.7% and 15%.

20. The method according to claim 19 wherein the concentration of Tween 80 is selected between 1.6% and 11%.

21. A method of treating a biological material comprising the steps of:

(a) first contacting the biological material with a preparation comprising a surfactant, a cross linking agent and a denaturant;

(b) following step (a), contacting the biological material with a preparation comprising a surfactant and a cross linking agent;

(c) following step (b), contacting the biological material with a preparation comprising surfactant, a cross linking agent and a denaturant; and

(d) following step (c), contacting the biological material with a terminal liquid sterilization solution.

22. The method according to claim 21 wherein said method results in mitigating calcification in said biological material when implanted into a host organism relative to the same method that does not include step (b).

23. The method according to claim 21 wherein said method results in reducing the phospholipid content in said biological material when implanted into a host organism relative to the same method that does not include step (b).

24. A biological material resistant to calcification produced by a method of treating said biological material comprising the steps of:

(a) contacting the biological material with a preparation comprising a surfactant and a cross linking agent in the absence of a denaturant; and

(b) contacting the biological material with a preparation comprising a surfactant, a cross linking agent and a denaturant.